

1 BAGGAGE CAROUSEL ADVERTISING DISPLAY PANELS AND SYSTEM

2
3 CROSS-REFERENCED TO RELATED APPLICATIONS

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5 This application is a continuation-in-part application
6 of U.S. Patent Application No. 10/199,753, filed 19 July
7 2002.

8
9 FIELD OF THE INVENTION

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11 This invention relates to methods and devices for
12 advertising.

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14 More particularly, the present invention relates to
15 visual information such as advertising on endless
16 conveyors.

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18 In a further and more specific aspect, the instant
19 invention concerns panels having visual information forming
20 the load carrying platforms on baggage carousels.

21
22 BACKGROUND OF THE INVENTION

23
24 Conveyors for carrying items from one location to
25 another location are well known in the art. In a specific
26 example, conveyors are placed into an endless essentially
27 circular orientation for dispensing baggage at airports.

1 Recently, panels have been developed for carrying and
2 presenting advertising to passengers waiting for their
3 baggage. Notable among these devices is a sheet containing
4 advertising adhered to the top surface of the conveyor
5 panels. While presenting advertising to waiting
6 passengers, this method is relatively ineffectual as the
7 baggage and items carried by the carousel damage the
8 sheets, obscuring the advertising.

9

10 A much more effective approach has been adhering
11 sheets containing indicia to the bottom of a transparent
12 panel. In this manner the relatively fragile sheet
13 containing indicia is protected from the baggage and items
14 carried by the carousel. While very effective, this method
15 has a drawback of being relatively expensive and also will
16 become scratched and worn over time by the repeated contact
17 with baggage.

18

19 In both of the foregoing devices, sheets containing
20 the indicia are adhered to the carousel panels. Thus when
21 the sheets and indicia are damaged or when new indicia are
22 desired, the entire panel must be replaced. Replacement of
23 the panels on a baggage carousel is labor-intensive as well
24 as costly.

25

26 More recent panels include indicia sheets coupled to
27 the back of transparent protective cover which are in turn

1 fastened to the top of base panels. These panels allow for
2 indicia to be changed without replacing the base panel.
3 However, baggage entering onto the carousel is often
4 dropped from a feed conveyor. This drop, while not
5 exceptionally large, does tend to cause baggage and other
6 items to gouge and scratch the protective covers. After a
7 relatively short time, the panels can become unattractive
8 or the indicia obscured.

9

10 It would be highly advantageous, therefore, to remedy
11 the foregoing and other deficiencies inherent in the prior
12 art.

13

14 Accordingly, it is an object of the present invention
15 to provide a new and improved baggage carousel.

16

17 Another object of the invention is to provide a
18 conveyor panel with easily replaceable indicia.

19

20 And another object of the invention is to provide a
21 conveyor panel which will absorb the shock of baggage
22 dropped thereon.

23

24 Yet another object of the present invention is to
25 provide an advertising device which is highly visible and
26 durable.

1 And yet another object of the present invention is to
2 provide a new and improved method for making, using and
3 maintaining an advertising device for use on conveyor
4 systems, which is relatively inexpensive, and produces
5 highly visible and durable advertising devices.

6

7 Still another object of the present invention is to
8 provide a panel which can be used with conveyors, a
9 plurality of which may be used on each conveyor, and which
10 can be individually replaced are changed to change visual
11 information without replacing the panel.

1 SUMMARY OF THE INVENTION

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3 Briefly, to achieve the desired objects of the instant
4 invention in accordance with a preferred embodiment
5 thereof, provided is a conveyor panel including a base
6 plate, an indicia plate and a bumper layer. The base plate
7 has a leading edge, a trailing edge, a top edge, a bottom
8 edge, and an upper surface. A groove line extends from the
9 leading edge toward the trailing edge, spaced a distance
10 from the bottom edge. A lifter bar extends from the upper
11 surface at the trailing edge and extends from the top edge
12 to the bottom edge. The indicia plate has a lower edge and
13 a trailing edge, and includes a protective cover overlying
14 an indicia sheet. The indicia plate is carried on the
15 upper surface of the base plate with the trailing edge of
16 the indicia plate abutting the lifting bar and the lower
17 edge of the indicia plate aligned along the groove line.
18 The bumper layer is carried on the top surface between the
19 base plate and the indicia plate.

20

21 Another aspect of the present invention provides a
22 baggage carousel having an attachment member movable about
23 a continuous circuit, and a conveyor panel as described
24 above coupled to the attachment member.

25

26 Also provided is a method of displaying indicia on a
27 baggage carousel.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and further and more specific objects and advantages of the instant invention will become readily apparent to those skilled in the art from the following detailed description of a preferred embodiment thereof taken in conjunction with the drawings, in which:

FIG. 1 is a partial perspective view of a baggage carousel according to the present invention;

FIG. 2 is an enlarged perspective view of a portion of the baggage carousel of FIG. 1;

FIG. 3 is a top plan view of a conveyor panel according to the present invention;

FIG. 4 is a partial exploded perspective view of a top portion of the conveyor panel of FIG. 3;

FIG. 5 is a partial cross-sectional view of the conveyor panel of FIG. 4;

FIG. 6 is a partially exploded perspective view of a bottom portion of the conveyor panel;

1 FIG. 7 is a partial sectional side view of the
2 conveyor panel of FIG. 6;

3

4 FIG. 8 is a sectional side view of the conveyor panel
5 of FIGS. 6 and 7, as it would appear impacted by a piece of
6 baggage;

7

8 FIG. 9 is a top plan view of another embodiment of a
9 conveyor panel according to the present invention;

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11 FIG. 10 is an exploded perspective view of a portion
12 of the panel of FIG. 9; and

13

14 FIG. 11 is an exploded sectional side view of the
15 portion of the panel of FIG. 10.

1 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT
2

3 Turning now to the drawings in which like reference
4 characters indicate corresponding elements throughout the
5 several views, attention is first directed to FIGS. 1 and
6 2, which illustrate a baggage carousel generally designated
7 10. While the present invention may be used with endless
8 conveyors in general, it is especially useful for improving
9 baggage carousels well known in airports. Baggage carousel
10 10 includes a plurality of conveyor panels 12 that move
11 around the periphery of carousel 10 carrying baggage and
12 other items to waiting people. Panels 12 are upstanding
13 between an elevated platform 14 with an upper rail 16
14 around its periphery and a lower rail 18 around the
15 periphery of the entire carousel. A section is removed
16 from elevated platform 14 for baggage loading means such as
17 a belt conveyor 20. Belt conveyor 20 carries the baggage
18 from a baggage loading area, generally placed at a lower
19 level. Belt conveyor 20 carries the baggage up to the
20 height of elevated platform 14 to slide the baggage onto
21 conveyor panels 12. Since conveyor panels 12 are at an
22 inclined angle, the baggage slides down conveyor panels 12
23 from the level of upper rail 16 to the level of lower rail
24 18.

25
26 Referring specifically to Fig. 1, an exploded section
27 of carousel 10 is illustrated, showing individual conveyor

1 panels 12 and a section of a transport mechanism that moves
2 panels 12 around the circumference of carousel 10. An
3 upper rail section 16A is shown removed from the remaining
4 portion of upper rail 16. Likewise, a lower rail section
5 18A is removed from the remaining section of lower rail 18
6 located around the periphery of carousel 10. This permits
7 panels 12 to be removed from the transport system itself.
8 Conveyor panels 12 are fastened with screws, for instance,
9 to a plurality of spaced apart attachment members, in this
10 embodiment support bars 24. Each support bar 24 is
11 interconnected with adjacent support bars forming a
12 continuous circuit. The structure of the baggage carousel
13 will not be described in greater detail as it is well known
14 to those skilled in the art. One skilled in the art will
15 understand that other types of baggage carousels and
16 conveyors can employ the present invention, such as flat
17 baggage carousels and the like.

18
19 Referring now to FIGS. 3, 4, and 5, conveyor panel 12
20 includes a base plate 30 having a leading edge 32, a
21 trailing edge 33, a top edge 34, a bottom edge 35, and a
22 top surface 37. A recess 38 is formed in top surface 37
23 intermediate top edge 34 and bottom edge 35, and extending
24 from leading edge 32 to a point spaced from trailing edge
25 33. A plurality of apertures 36 are formed along trailing
26 edge 33 intermediate trailing edge 33 and recess 38.
27 Apertures 36 receive fasteners for fastening conveyor panel

1 12 to support bars 24. Recess 38 can be routed in base
2 plate 30 or molded therein during fabrication of base plate
3 30. One skilled in the art will understand that while
4 recess 38 is employed in the present embodiment, the top
5 surface of the panel may be generally planar, without a
6 recess, or simply with a raised trailing edge for
7 attachment of the panel to the carousel.

8

9 Wear strips 39 can be fastened to the top and bottom
10 of base plate 30 as can be seen in FIGS. 3, 4 and 6, by any
11 of a variety of fastening mechanism, such as fasteners like
12 screws, pins clips, etc. and adhesives, which are preferred
13 for this embodiment. Wear strips 39 serve to add
14 additional protection where base plate 30 slides under
15 rails 16 and 18. When a wear strip is employed, base
16 plate 30 can have recesses formed at the top and bottom
17 thereof to receive the wear strip. One skilled in the art
18 will readily understand that other types of carousels may
19 not have one or more of rails 16 and 18. In those
20 instances, one or both of wear strips 39 may not be
21 employed. When wear strips 39 are absent, recess 38 can
22 extend the entire length of base plate 30, from top edge 34
23 to bottom edge 35. Base plate 30 is preferably formed in a
24 single (unitary) piece, of a synthetic material such as
25 plastic, or other hard material. The preferred material is
26 a hybrid ABS like ROYAL LIGHT KYDEX® or the like. The use

1 of some materials may permit the elimination of wear strips
2 39.

3
4 Conveyor panel 12 further includes an indicia plate 40
5 mounted within recess 38 of base plate 30. Indicia plate
6 40 consists of a protective cover 42 having a back surface
7 43 and an indicia sheet 44 adhered to back surface 43. A
8 front surface 45 of indicia sheet 44 is adhered to back
9 surface 43 so that the indicia is viewable through
10 protective cover 42. In the preferred embodiment,
11 protective cover 42 is transparent, permitting indicia on
12 indicia sheet 44 to be viewed therethrough. It will be
13 understood that while indicia sheet 44 is an actual sheet
14 of material in this embodiment, a "sheet" of ink can be
15 printed directly onto the back side of protective cover 42.
16 It will also be understood that the term transparent can
17 means translucent, tinted, etc., as long as the indicia can
18 be viewed. Protective cover 42 is preferably fabricated of
19 a hard coat plastic such a hard coat polycarbonate (LEXAN®),
20 which is lubricious, facilitating sliding movement between
21 panels, and hard, retarding gouging and scratching.

22
23 Still referring to FIGS. 3, 4, and 5, a bumper layer
24 50 is positioned between indicia plate 40 and base plate
25 30. Bumper layer 50 is preferably a sheet of rubber or
26 other elastomeric material fastened to base plate 30 within
27 recess 38. During fabrication of panel 12, bumper layer 50

1 is fastened, such as by mechanical fasteners or adhesives,
2 within recess 38, with a subsequent step of fastening
3 indicia plate 40 to bumper layer 50. Alternatively, bumper
4 layer 50 can be fastened to indicia plate 40 initially,
5 with a subsequent step of fastening bumper layer 50 to base
6 plate 30. As stated, the fastening of the various layers
7 and sheets is preferably accomplished through the use of
8 adhesives, although mechanical fasteners such as screws,
9 pin, clips, etc, can be employed. Bumper layer 50 absorbs
10 the force of impact created when a piece of baggage or
11 other item is dropped onto carousel 10 as can be seen with
12 reference to FIG. 8. When an item contacts protective
13 cover 42, instead of being held rigid and being gouged,
14 bumper layer 50 allows cover 42 to give slightly, diffusing
15 the impact and greatly reducing the likelihood of gouging
16 or scratching.

17
18 When installed on baggage carousel 10, conveyor panels
19 12 overlap adjacent panels 12 as illustrated in FIGS. 1 and
20 2. Leading edges 32 of the overlapping panels cover a
21 portion of trailing edges 33 of the panels to a point
22 adjacent indicia plate 40. This presents a substantially
23 unbroken view of indicia sheets 44 of adjacent panels, at
24 least on the straight stretches of the baggage carousel.
25 It will be understood that the direction of overlap depends
26 on the direction of rotation of the carousel, and carousels
27 have been developed for rotation in both direction. The

1 overlap of panels 12 conventionally results in wear on the
2 top surface of adjacent conveyor plates. However, wear on
3 indicia plate 40 is substantially reduced or eliminated in
4 this embodiment because the top surface thereof can be
5 recessed with respect to top surface 37 of base plate 30
6 allowing adjacent panels to slide over the top without
7 making substantial contact.

8

9 Thus, panels 12 are installed on baggage carousel 10,
10 as illustrated in Fig. 1, to form one or more single panel
11 or compound panel images, as desired for advertising, etc.
12 Changing the indicia employed is easily accomplished by
13 removing the desired indicia plate 40, and substituting
14 therefore another indicia plate containing the new indicia.
15 During this entire procedure, base plate 30 can remain in
16 position, attached to baggage carousel 10.

17

18 Turning now to FIGS. 6 and 7, another embodiment of a
19 protective cover, generally designated 60, is illustrated.
20 Cover 60 functions in the same manner as described
21 previously for protective cover 42 and the remaining
22 elements will be designated as previously. The difference
23 is the addition of multiple layers. Protective cover 42
24 can preferably be a single layer having a thickness of
25 between 10 mils and 60 mils due to the action of bumper
26 layer 50. Since an effective protective cover can be so
27 thin, in this embodiment, cover 60 includes a plurality of

1 cover sheets 62 fastened together, with the bottom most
2 sheet fastened to indicia sheet 44. Over time, the top
3 most cover sheet of protective cover 60 may become worn,
4 scratched, dirty, etc. Instead of replacing cover 60 or
5 panel 12, the top most sheet is simply peeled off as
6 illustrated in FIG. 6. The underlying cover sheet is
7 unmarred and cover 60 appears as new. A peelable adhesive
8 is preferably used to fasten plurality of cover sheets 62
9 together.

10

11 Cover 60 can be formed of plurality of cover sheets 62
12 because sheets 62 can be sufficiently thin, preferably
13 between .010 and .060 inches. Thus, cover 60 can be a
14 single sheet of between 10 mil and 60 mils. A very thin
15 protective cover can be employed due to the absorbing and
16 dissipating action of bumper layer 50, which is also
17 preferably 6 mils in thickness.

18

19 Referring now to FIGS. 9-11, a conveyor panel 112 is
20 illustrated. Panel 112 is employed substantially as panel
21 12, and therefore, will not be described in detail in
22 conjunction with carousel 10. Panel 112 includes a base
23 plate 130 having a leading edge 132, a trailing edge 133, a
24 top edge 134, a bottom edge 135, and a top surface 137. A
25 groove line 138 is formed in top surface 137 intermediate
26 top edge 134 and bottom edge 135 and extending from leading
27 edge 132 to a point spaced from trailing edge 133. Groove

1 138 is positioned closer to bottom edge 135 and is spaced
2 therefrom a distance substantially equal to a distance the
3 lower rail 18 of carousel 10 overlaps the bottom of
4 conveyor panel 112. In other words, groove line 138 is
5 preferably positioned a distance from bottom edge 135 so as
6 to be slightly outside of lower rail 18 and not covered
7 thereby. The portion of panel 112 between groove 138 and
8 bottom edge 135 is typically covered by lower rail 18
9 (covered area). One skilled in that art will understand
10 that groove line 138 can also vary in position so as to be
11 slightly covered by lower rail 18 if desired. Groove line
12 138 can be formed with the forming of plate 130, such as by
13 molding or other fabrication method. Groove line 138 can
14 also be formed subsequent to the fabrication of base plate
15 130, such as by cutting with a router or other tool and is
16 essentially a score in the material which does not
17 compromise the integrity or strength of base plate 130.
18 The purpose of groove 138 will be described presently.

19

20 A lifter bar 139 is coupled to trailing edge, and
21 extends from upper edge to lower edge. Lifter bar 139 is
22 relatively narrow, and roughly corresponds to the overlap
23 of the trailing panel adjacent thereto on the straight
24 section of carousel 10. It will be understood that while
25 lifter bar 139 can be narrower than the overlap area, it is
26 undesirable for it to be greater than the overlap area. A
27 plurality of apertures 136 are formed along trailing edge

1 133 through lifter bar 139. Apertures 136 receive
2 fasteners for fastening conveyor panel 112 to support bars
3 24. Lifter bar 139 can be integrally formed with base
4 plate 130, such as being molded thereon during fabrication
5 of base plate 130, or fastened in position using adhesives,
6 fasteners, pins screws, and the like. Lifter bar 139 acts
7 as an alignment mechanism, as will be described presently,
8 and as a lifting mechanism for lifting the leading edge of
9 an adjacent overlapping conveyor panel.

10

11 Conveyor panel 112 further includes an indicia plate
12 140 mounted on top surface 137 of base plate 130. Indicia
13 plate 140 consists of a protective cover 142 having a back
14 surface 143 and an indicia sheet 144 adhered to back
15 surface 143. A front surface 145 of indicia sheet 144 is
16 adhered to back surface 143 so that the indicia is viewable
17 through protective cover 142. In the preferred embodiment,
18 protective cover 142 is transparent, permitting indicia on
19 indicia sheet 144 to be viewed therethrough. It will be
20 understood that while indicia sheet 144 is an actual sheet
21 of material in this embodiment, a "sheet" of ink can be
22 printed directly onto the back side of protective cover
23 142. It will also be understood that the term transparent
24 can means translucent, tinted, etc., as long as the indicia
25 can be viewed. Protective cover 142 is preferably
26 fabricated of a hard coat plastic such a hard coat
27 polycarbonate (LEXAN®), which is lubricious, facilitating

1 sliding movement between panels, and hard, retarding
2 gouging and scratching. Indicia plate 140 is prevented
3 from being adversely contacted by the adjacent overlapping
4 conveyor panel by the lifting influence of lifter bar 139.
5 The leading edge of the adjacent panel is held over indicia
6 plate 140 so as to prevent snagging or excessive contact
7 when panels overlap, particularly when rounding corners of
8 the carousel.

9

10 Indicia plate 140 has a lower edge 146 and a trailing
11 edge 148. Properly positioned, trailing edge 148 abuts
12 lifter bar 139 and lower edge 146 is aligned along groove
13 line 138. Groove line 138 permits indicia plates 140 of
14 all of the conveyor panels to be identically aligned to
15 form a contiguous image or indicia. Additionally, by
16 aligning indicia plate 140 along groove line 138, indicia
17 plate 140 is positioned properly with respect to lower rail
18 18.

19

20 A bumper layer 150 is positioned between indicia plate
21 140 and base plate 130. Bumper layer 150 is preferably a
22 sheet of rubber or other elastomeric material fastened to
23 top surface 137 of base plate 130. During fabrication of
24 panel 112, bumper layer 150 is fastened in position, such
25 as by mechanical fasteners or adhesives, with a subsequent
26 step of fastening indicia plate 140 to bumper layer 150.
27 Alternatively, bumper layer 150 can be fastened to indicia

1 plate 140 initially, with a subsequent step of fastening
2 bumper layer 150, with attached indicia plate 140, to base
3 plate 130. As stated, the fastening of the various layers
4 and sheets is preferably accomplished through the use of
5 adhesives, although mechanical fasteners such as screws,
6 pin, clips, etc, can be employed. Preferably, bumper layer
7 150 has dimensions equal to indicia plate 140 so as to
8 completely under lie it without extending past edges
9 thereof. Thus, bumper layer 150 preferably covers top
10 surface 137 of base plate 130 from top edge 134 to groove
11 line 138, and from leading edge 132 to lifter bar 139.
12 Bumper layer 150 absorbs the force of impact created when a
13 piece of baggage or other item is dropped onto carousel 10
14 as can be seen with reference to FIG. 8 in the previous
15 embodiment. When an item contacts protective cover 142,
16 bumper layer 150 allows cover 142 to give slightly. The
17 impact is diffused, greatly reducing the likelihood of
18 gouging or scratching.

19

20 Lifter bar 139 is employed on carousels having
21 overlapping panels. On carousels that have panels which
22 abut and do not overlap, lifter bar 139 is omitted. In
23 this instance, indicia plate 140 and bumper layer 150
24 extend from the leading edge 132 of base plate 130 to
25 trailing edge 133. Groove line 138 also extends entirely
26 across base plate 130, to facilitate proper alignment of
27 indicia plate 140.

1 Various changes and modifications to the embodiments
2 herein chosen for purposes of illustration will readily
3 occur to those skilled in the art. To the extent that such
4 modifications and variations do not depart from the spirit
5 of the invention, they are intended to be included within
6 the scope thereof which is assessed only by a fair
7 interpretation of the following claims.

8
9 Having fully described the invention in such clear and
10 concise terms as to enable those skilled in the art to
11 understand and practice the same, the invention claimed is: